Louisville Metro Air Pollution Control District
850 Barret Avenue
Louisville, Kentucky 40204-1745

Permit No.: 422-08-C (R2) Plant ID 0532

Effective Date: Click here to enter a date. Expiration Date: Click here to enter a date. Permit Fee $ 0

Waste Management of Kentucky's Outer Loop Recycling and Disposal Facility (OLRDF)
2673 Outer Loop Road
Louisville, KY 40219

is authorized to construct the described process equipment by the Louisville Metro Air Pollution Control District. Authorization is based on information provided with the application submitted by the company and in accordance with applicable regulations and the conditions specified herein.

Process equipment description:

One (1) 56,280,000 yd^3 (43,029,147 m^3) expansion to the current landfill designated as Unit 8 (U1-F) of the landfill.

Applicable Regulation(s): 40 CFR 60 Subpart WWW, 40 CFR 61 Subpart M, 40 CFR 63 Subpart AAAA, 2.03, 2.05, 2.16, 5.00, 5.01, 5.14, 5.20, 5.21, 5.22, 5.23, and 7.02

Control reference(s): 423-08-C (R1)

Application No.: 30469 Application Received: 12/19/2007

Permit Writer: Chris Gerstle

Public Comment Date: 1/17/2013
4/20/2013

{manager1}
Air Pollution Control Officer
{date1}

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This permit covers only the provisions of Kentucky Revised Statutes Chapter 77 Air Pollution Control, the regulations of the Louisville Metro Air Pollution Control District (District) and, where appropriate, certain federal regulations. The issuance of this permit does not exempt any owner or operator to whom it has been issued from prosecution on account of the emission or issuance of any air contaminant caused or permitted by such owner or operator in violation of any of the provisions of KRS 77 or District regulations. Any permit shall be considered invalid if timely payment of applicable fees is not made after receipt of the statement of fees (SOF). The permit contains general permit conditions and specific permit conditions. General conditions are applicable unless a more stringent requirement is specified elsewhere in the permit.

General Conditions

G1. The owner or operator of the affected facility covered by this permit shall notify the District of any process change, equipment change, material change, or change in method or hours of operation. This requirement is applicable to those changes that may have the potential for increasing the emission of air contaminants to a level in excess of the applicable limits or standards specified in this permit or District regulations.

G2. The owner or operator shall obtain new or revised permits from the District when:
(See District Regulation 2.16 for Title V sources. See District Regulation 2.17 for FEDOOP sources. See District Regulation 2.03 for other sources.)

a. The company relocates to a different physical address.
b. The ownership of the company is changed.
c. The name of the company as shown on the permit is changed.
d. Permits are nearing expiration or have expired.

G3. The owner or operator shall submit a timely application for changes according to G2. For minor sources only, the District does not require application for permit renewal. The District automatically commences the process of permit renewal for minor sources upon expiration. Timely renewal is not always achievable; therefore, the company is hereby authorized to continue operation in compliance with the latest District permit(s) until the District issues the renewed permit(s).

G4. The owner or operator shall not be authorized to transfer ownership or responsibility of the permit. The District may transfer permits after appropriate notification (Form 100A) has been received and review has been made.

G5. The owner or operator shall pay the required permit fees within 45 days after issuance of the SOF by the District, unless other arrangements have been proposed and accepted by the District.

G6. This permit allows operation 8,760 hours per year unless specifically limited elsewhere in this permit.

G7. The owner or operator shall submit emission inventory reports as required by Regulation 1.06.

G8. The owner or operator shall timely report abnormal conditions or operational changes, which may cause excess emissions as required by Regulation 1.07.

G9. Unless specified elsewhere in this permit, the owner or operator shall complete required monthly record keeping within 30 days following the end of each calendar month.

G10. If a change in the Responsible Official (RO) occurs during the term of this permit, the owner or operator shall provide written notification (Form 100A) to the District within 30 calendar days of the date the RO change occurs.

Emission Unit U1: Municipal Solid Waste Landfill (MSWL)

U1 Applicable Regulations:

FEDERALLY ENFORCEABLE REGULATIONS		
Regulation	**Title**	**Applicable Sections**
2.05	Prevention of Significant Deterioration of Air Quality	1
6.45	Standards of Performance for Existing Solid Waste Landfills	1, 2, 3.1.2, 3.1.3, 4, 5
40 CFR 60, Subpart WWW	Standards of Performance for Municipal Solid Waste Landfills	60.750 through 60.759
40 CFR 61, Subpart M	National Emission Standard for Asbestos	61.141 and 61.154 (c), (d) and (e)
40 CFR 63, Subpart AAAA	National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills	63.1930 through 63.1990

DISTRICT ONLY ENFORCEABLE REGULATIONS		
Regulation	**Title**	**Applicable Sections**
5.00	Definitions	All
5.01	General Provisions	1 through 4
5.02	Federal Emission Standards for Hazardous Air Pollutants Incorporated by Reference	1, 2, 3, 4
5.20	Methodology for Determining Benchmark Ambient Concentration of a Toxic Air Contaminant	1 through 6
5.21	Environmental Acceptability for Toxic Air Contaminants	1 through 5
5.22	Procedures for Determining the Maximum Ambient Concentration of a Toxic Air Contaminant	1 through 5
5.23	Categories of Toxic Air Contaminants	1 through 6
7.02	Federal New Source Performance Standards Incorporated by Reference	1, 2, 4

U1 Emission Points		
Emission Point	**Description**	**Control ID**
E-1	Open Flare #1; Parnel Biogas, Inc. (109.2 MMBtu/hr, 4000 scfm)	C-1
E-2	Open Flare #2; Parnel Biogas, Inc. (109.2 MMBtu/hr, 4000 scfm)	C-2
E-3	Open Flare #3; LFG Specialties, LLC (128 MMBtu/hr, 4200 scfm)	C-3

U1 Control Devices		
Control ID	**Description**	**Stack ID**
C-1	Open flare #1	S1
C-2	Open flare #2	S2
C-3	Open flare #3	S3

U1 Specific Conditions

S1. **Standards (Regulation 2.03, section 5.1)**

a. **CO**

i. The owner or operator shall not allow or cause the pre Unit 8 expansion CO emissions to equal or exceed 234 tons per twelve consecutive month period. (Regulation 2.05) (U1 Comment 1)

ii. The owner or operator shall not allow or cause the Unit 8 expansion CO emissions to equal or exceed 249 tons per twelve consecutive month period. (Regulation 2.05) (U1 Comment 1)

b. **Opacity**

Flares shall be operated with no visible emissions, except for periods not to exceed a total of 5 minutes during any 2 consecutive hours. (40 CFR 60.18(c)(1))

c. **NMOC**

i. The owner or operator shall not allow or cause the NMOC emissions to equal or exceed 167 tons (150 Mg) per calendar year period.
(Regulation 6.45, section 3.1.2.1.3.3) (U1 Comment 2)

GAS COLLECTION SYSTEM

ii. For the purpose of determining sufficient density of gas collectors, the owner or operator shall design a system of vertical wells, horizontal collectors, or other collection devices, capable of controlling and extracting gas from all portions of the landfill sufficient to meet all operational and performance standards.
(40 CFR 60.755(a)(2))

iii. The owner or operator of a controlled landfill shall place each well or design component as specified in the approved design plan. Each well shall be installed no later than 60 days after the date on which the initial solid waste has been in place for a period of: (40 CFR 60.755(b))

1) 5 years or more if active; or
2) 2 years or more if closed or at final grade.

iv. Install a collection and control system that shall:
(40 CFR 60.752(b)(2)(ii)(A))

1) Be designed to handle the maximum expected gas flow rate from the entire area of the landfill that warrants control over the intended use period of the gas control or treatment system equipment;
(40 CFR 60.752(b)(2)(ii)(A)(*1*); Regulation 6.45, section 3.1.2.1.3.1)

2) Collect gas from each area, cell, or group of cells in the landfill in which the initial solid waste has been placed for a period of;
(40 CFR 60.752(b)(2)(ii)(A)(*2*),

(a) 5 years or more if active,
(40 CFR 60.752(b)(2)(ii)(A)(*2*)(*i*), or

(b) 2 years or more if closed or at final grade,
(40 CFR 60.752(b)(2)(ii)(A)(*2*)(*ii*));
Regulation 6.45, section 3.1.2.1.3.2)

3) Collect gas at a sufficient extraction rate;
(40 CFR 60.752(b)(2)(ii)(A)(*3*))

4) Be designed to minimize off-site migration of subsurface gas; (40 CFR 60.752(b)(2)(ii)(A)(*4*)), and

v. Operate the collection system such that gas is collected from each area, cell, or group of cells in the MSW landfill in which solid waste has been in place for: (40 CFR 60.753(a))

1) 5 years or more if active, (40 CFR 60.753(a)(1))

2) 2 years or more if closed or at final grade, (40 CFR 60.753(a)(2))

vi. Operate the collection system with negative pressure at each wellhead except under the following conditions: (40 CFR 60.753(b))

1) A fire or increased well temperature, (40 CFR 60.753(b)(1))

2) Use of a geomembrane or synthetic cover. The owner or operator shall develop acceptable pressure limits in the design plan, (40 CFR 60.753(b)(2))

3) For wells below a geomembrane or synthetic cover, prior to the placement of the select waste layer, the acceptable positive pressure in the gas wells shall be limited to 36.9 in-w.c. After the full select waste layer (8 feet minimum thickness) is in place and compacted the acceptable pressure shall be limited to 86.2 in-w.c. (U1 Comment 8)

4) A decommissioned well. (40 CFR 60.753(b)(3))

vii. Operate each interior wellhead in the collection system with a landfill gas temperature less than 55 °C (131 °F) and with either a nitrogen level less than 20 percent or an oxygen level less than 5 percent. The owner or operator may establish higher operating temperature, nitrogen, or oxygen value at a particular well. A higher operating value demonstration shall show supporting data that the elevated parameter does not cause fires or significantly inhibit anaerobic decomposition by killing methanogens. (40 CFR 60.753(c))

viii. Operate the collection system so that the methane concentration is less than 500 parts per million above background at the surface of the landfill. To determine if this level is exceeded, the owner or operator shall conduct surface testing around the perimeter of the collection area and along a pattern that traverses the landfill at 30 meter intervals and where visual observations indicate elevated concentrations of landfill gas, such as distressed vegetation and cracks or seeps in the cover. Areas with steep slopes or other dangerous areas may be excluded from the surface testing. (40 CFR 60.753(d))

GAS CONTROL SYSTEM

ix. Route all the collected gas to a control system that complies with a combination of the following: (40 CFR 60.752(b)(2)(iii))

1) An open flare designed and operated in accordance with the following; (40 CFR 60.752(b)(2)(iii)(A); Regulation 6.45, section 3.1.2.2.1)

(a) Flares shall be operated with a flame present at all times, (40 CFR 60.18(c)(2))

(b) Flares shall be operated at all times when emissions may be vented to them. (40 CFR 60.18(e)), or

2) Route the collected gas to a treatment system that processes the collected gas for subsequent sale or use. (40 CFR 60.752(b)(2)(iii)(C); Regulation 6.45, section 3.1.2.2.4)

x. In the event the collection or control system is inoperable, the gas mover system shall be shut down and all valves in the collection and control system contributing to venting or the gas to the atmosphere shall be closed within 1 hour. (40 CFR 60.753(e))

xi. Operate the control or treatment system at all times when the collected gas is routed to the system. (40 CFR 60.753(f))

xii. If monitoring demonstrates that the operational requirements are not met, corrective action shall be taken as specified in 40 CFR 60.755(a)(3) through (5) or §60.755(c) of subpart WWW. If corrective actions are taken as specified in §60.755, the monitored exceedance is not a violation of the operational requirements in this section. (40 CFR 60.753(g))

d. **Asbestos (40 CFR 61 Subpart M)**

When actively receiving asbestos containing material, the owner or operator shall ensure, at the end of each operating day, or at least once every 24-hour period while the site is in continuous operation, the asbestos-containing waste material that has been deposited at the site during the operating day or previous 24-hour period shall: (40 CFR 61.154(c))

i. Be covered with at least 15 centimeters (6 inches) of compacted non-asbestos-containing material, (40 CFR 61.154(c)(1)), or

ii. Be covered with a resinous or petroleum-based dust suppression agent that effectively binds dust and controls wind erosion. Such an agent shall be used in the manner and frequency recommended for the particular dust by the dust suppression agent manufacturer to achieve and maintain dust control. Other equally effective dust suppression agents may be used upon prior approval by the Administrator. For purposes of this paragraph, any used, spent, or other waste oil is not considered a dust suppression agent. (40 CFR 61.154(c)(2))

iii. Upon discovering a discrepancy between the quantity of waste designated on the waste shipment records and the quantity actually received, attempt to reconcile the discrepancy with the waste generator. (40 CFR 61.154(e)(3))

e. **HAP (40 CFR 63 Subpart AAAA)**

i. The owner or operator shall install and extend the collection and control system into each new cell or area of the bioreactor prior to initiating liquids addition in that area, instead of the schedule in 40 CFR 60.752(b)(2)(ii)(A)(*2*).
(40 CFR 63.1955(d)(2), 40 CFR 63.1947(a)(1), 40 CFR 63.1947(c)(1))

ii. The owner or operator shall begin operating the gas collection and control system within 180 days after initiating liquids addition or within 180 days after achieving a moisture content of 40 percent by weight, whichever is later. If you choose to begin gas collection and control system operation 180 days after achieving a 40 percent moisture content instead of 180 days after liquids addition, use the procedures in § 63.1980(g) and (h) to determine when the bioreactor moisture content reaches 40 percent.
(40 CFR 63.1947(a)(2), 40 CFR 63.1947(c)(2))

f. **TAC**

i. The owner or operator shall not allow emissions of any TAC to exceed environmentally acceptable (EA) levels, whether specifically established by modeling or determined by the District to be de minimis.
(Regulations 5.00 and 5.21)

ii. The owner or operator shall not exceed a waste disposal rate of 1,000,000 tons of municipal solid waste and the following emission limits per twelve consecutive month period: (Regulation 5.21, section 4.3) (U1 Comment 4)

Pollutant	CAS #	Category	Limit (lb)
Benzene	71-43-2	1	229.75
Dichlorobenzene (1,4-)	106-46-7	1	714.95
Ethyl Benzene	100-41-4	4	2,187
Ethylene Dichloride	107-06-2	3	35.94
Tetrachorethane (1,1,2,2-)	79-34-5	3	35.56
Trichloroethylene	79-01-6	1	270.82
Vinyl Chloride	75-01-4	1	203.724

S2. **Monitoring and Record Keeping (Regulation 2.03, section 5.1)**

The owner or operator shall maintain the required records for a minimum of 5 years and make the records readily available to the District upon request.

a. **CO**

i. The owner or operator shall monthly calculate and record the pre-Unit 8 expansion CO emissions from the previous twelve consecutive month period. (U1 Comment 1)

ii. The owner or operator shall monthly calculate and record the Unit 8 expansion CO emissions from the previous twelve consecutive month period. (U1 Comment 1)

iii. CO emissions will be calculated using the following equation unless another method is approved by the District:

Monthly CO = Monthly Landfill Gas Generation (MMCF/month) × 0.37 lb/MMCF × 1,012 MMBtu/MMCF × 1 ton/2000 lb× 50% methane

b. **Opacity**

i. The owner or operator shall monthly conduct a one-minute visible emissions survey, during normal operation and daylight hours, of the flares.

ii. Where visible emissions are observed, the owner or operator shall initiate corrective action within eight hours of the initial visible emission observation.

iii. The owner or operator shall monthly record the results of all visible emissions surveys and tests. Records of the results of any visible emissions survey shall include the date of the survey, the name of the person conducting the survey, whether or not visible emissions were observed, and what if any corrective action was performed. If an emission point is not being operated during a given month, then no visible emission survey needs to be performed and a negative declaration shall be entered in the record.

c. **NMOC**

i. The owner or operator shall monthly calculate and record the NMOC year to date emissions using the following equation: (U1 Comment 3)

$$M_{NMOC} = 1.12\ 10^{-4} \times V_{LFG} \times C_{NMOC} \times (1\text{-}CE)$$

where:

M_{NMOC} = mass emission rate of NMOC, ton/month

V_{LFG} = flowrate of landfill gas, ft^3/month
C_{NMOC} = NMOC concentration, ppmv as hexane
CE = flare control efficiency

V_{LFG} shall be obtained by measuring the total landfill gas flowrate using an orifice meter as described in Method 2E at the common header pipe that leads to the control devices.

C_{NMOC} shall be determined by collecting and analyzing landfill gas sampled from the common header pipe using EPA Method 25C.

ii. The owner or operator shall keep on-site records of the design capacity report, the current amount of solid waste in-place, and the year-by-year waste acceptance rate. Off-site records may be maintained if they are retrievable within 4 hours. Either paper copies or electronic formats are acceptable. (40 CFR 60.758(a))

SURFACE EMISSION MONITORING

iii. The following procedures shall be used for compliance with the surface methane operational standard: (40 CFR 60.755(c))

1) The owner or operator shall monitor surface concentrations of methane along the entire perimeter of the collection area and along a pattern that traverses the landfill at 30 meter intervals for each collection area on a quarterly basis using an organic vapor analyzer, flame ionization detector, or other portable monitor that meets specifications and procedures for surface emission monitoring devices per §60.755(d). (40 CFR 60.755(c)(1))

2) The background concentration shall be determined by moving the probe inlet upwind and downwind outside the boundary of the landfill at a distance of at least 30 meters from the perimeter wells. (40 CFR 60.755(c)(2))

3) Surface emission monitoring shall be performed in accordance with section 4.3.1 of Method 21 of appendix A of this part, except that the probe inlet shall be placed within 5 to 10 centimeters of the ground. Monitoring shall be performed during typical meteorological conditions. (40 CFR 60.755(c)(3))

4) Any reading of 500 parts per million or more above background at any location shall be recorded as a monitored exceedance and the following actions shall be taken. As long as the specified actions are taken, the exceedance is not a violation of the operational requirements of §60.753(d). (40 CFR 60.755(c)(4))

(a) The location of each monitored exceedance shall be marked and the location recorded. (40 CFR 60.755(c)(4)(i))

(b) Cover maintenance or adjustments to the vacuum of the adjacent wells to increase the gas collection in the vicinity of each exceedance shall be made and the location shall be re-monitored within 10 calendar days of detecting the exceedance. (40 CFR 60.755(c)(4)(ii))

(c) If the re-monitoring of the location shows a second exceedance, additional corrective action shall be taken and the location shall be monitored again within 10 days of the second exceedance. If the re-monitoring shows a third exceedance for the same

location, the action specified in U1 Specific Condition S2.c.iii.4)(e) of this section shall be taken, and no further monitoring of that location is required until the action specified in U1 Specific Condition S2.c.iii.4)(e) has been taken. (40 CFR 60.755(c)(4)(iii))

(d) Any location that initially showed an exceedance but has a methane concentration less than 500 ppm methane above background at the 10-day re-monitoring specified in U1 Specific Condition S2.c.iii.4)(b) or S2.c.iii.4)(c) of this section shall be re-monitored 1 month from the initial exceedance. If the 1-month re-monitoring shows a concentration less than 500 parts per million above background, no further monitoring of that location is required until the next quarterly monitoring period. If the 1-month re-monitoring shows an exceedance, the actions specified in U1 Specific Condition S2.c.iii.4)(c) or S2.c.iii.4)(e) shall be taken. (40 CFR 60.755(c)(4)(iv))

(e) For any location where monitored methane concentration equals or exceeds 500 parts per million above background three times within a quarterly period, a new well or other collection device shall be installed within 120 calendar days of the initial exceedance. An alternative remedy to the exceedance, such as upgrading the blower, header pipes or control device, and a corresponding timeline for installation may be submitted to the District for approval.

5) The owner or operator shall implement a program to monitor for cover integrity and implement cover repairs as necessary on a monthly basis. (40 CFR 60.755(c)(5))

iv. Any closed landfill that has no monitored exceedances of the operational standard in three consecutive quarterly monitoring periods may skip to annual monitoring. Any methane reading of 500 ppm or more above background detected during the annual monitoring returns the frequency for that landfill to quarterly monitoring. (40 CFR 60.756(f))

v. The owner or operator shall keep a record indicating the areas where a geomembrane is in place. The record shall also indicate the wells located below the geomembrane and the presence or absence of a full select layer (8 feet minimum thickness) in place and compacted above the geomembrane. (Regulation 2.16, sections 4.1.9.1 and 4.1.9.2)

vi. The owner or operator shall notify the District ten (10) working days in advance of performing the routine surface emissions monitoring to allow a District representative to be present to witness the surface emission monitoring, including the calibration of the surface monitoring equipment. If the testing date must be changed within the ten working days, the owner or operator shall notify the District of the new proposed date. (Regulation 2.16, sections 4.1.9.1 and 4.1.9.2)

GAS COLLECTION AND CONTROL SYSTEM

vii. For an active gas collection system, the owner or operator shall install a sampling port and a thermometer, other temperature measuring device, or an access port for temperature measurements at each wellhead and: (40 CFR 60.756(a); Regulation 6.45, section 4.1)

1) Measure *and record* the gauge pressure in the gas collection header *at each individual well* on a monthly basis; (40 CFR 60.756(a)(1); Regulation 6.45, section 4.1) (U1 Comment 5)

   (a) If a positive pressure exists, action shall be initiated to correct the exceedance within 5 calendar days, except for the following; (40 CFR 60.755(a)(3))

      i) A fire or increased well temperature, (40 CFR 60.753(b)(1))

      ii) Use of a geomembrane or synthetic cover, (40 CFR 60.753(b)(2))

      iii) A decommissioned well. A well may experience a static positive pressure after shut down to accommodate for declining flows. (40 CFR 60.753(b)(3))

   (b) If negative pressure cannot be achieved, action shall be initiated to correct the exceedance within 5 calendar days, except for the three conditions allowed under §60.753(b). If negative pressure cannot be achieved without excess air infiltration within 15 calendar days of the first measurement, the gas collection system shall be expanded to correct the exceedance within 120 days of the initial measurement of positive pressure. Any attempted corrective measure shall not cause exceedances of other operational or performance standards. An alternative timeline for correcting the exceedance may be submitted to the District for approval. (40 CFR 60.755(a)(3))

   (c) The owner or operator is not required to expand the system during the first 180 days after gas collection system startup. (40 CFR 60.755(a)(4))

2) Monitor *and record* the nitrogen or oxygen concentration and the temperature in the landfill gas on a monthly basis; (40 CFR 60.756(a)(2), & §60.756(a)(3), and §60.758(c)) (U1 Comment 5)

   If a well exceeds *the nitrogen or oxygen concentration, or the operating temperature then* action shall be initiated to correct the exceedance within 5 calendar days. If correction of the exceedance cannot be achieved within 15 calendar days of the first measurement, the gas collection system shall be expanded to correct the exceedance within 120 days of the initial exceedance. Any attempted corrective measure shall not cause exceedances of other operational or performance standards. (40 CFR 60.755(a)(5)) (U1 Comment 5)

3) The nitrogen level shall be determined using EPA Method 3C. (40 CFR 60.753(c)(1))

4) The oxygen shall be determined by an oxygen meter using EPA Method 3A or 3C except that: (40 CFR 60.753(c)(2))

   (a) The span shall be set so that the regulatory limit is between 20 and 50 percent of the span; (40 CFR 60.753(c)(2)(i))

   (b) A data recorder is not required; (40 CFR 60.753(c)(2)(ii))

(c) Only two calibration gases are required, a zero and span, and ambient air may be used as the span;
(40 CFR 60.753(c)(2)(iii))

(d) A calibration error check is not required; (40 CFR 60.753(c)(2)(iv)) and

(e) The allowable sample bias, zero drift, and calibration are ± 10 percent. (40 CFR 60.753(c)(2)(v))

viii. The owner or operator using an open flare shall install, calibrate, maintain, and operate according to the manufacturer's specifications:

1) A heat sensing device, such as an ultraviolet beam sensor or thermocouple, at the pilot light or the flame itself to indicate the continuous presence of a flame; (40 CFR 60.756(c)(1);
Regulation 6.45, section 4.3.1)

2) A gas flow rate measuring device that shall record the *landfill gas* flow to the control device at least every 15 minutes.
(Regulation 6.45, section 4.3.2) (U1 Comment 5)

ix. The owner or operator shall keep records for the life of the control equipment of the following data as measured during the initial performance test or compliance determination. Records of subsequent tests or monitoring shall be maintained for a minimum of 5 years. Records of the control device vendor specifications shall be maintained until removal. (40 CFR 60.758(b))

1) The maximum expected gas generation flow rate as calculated in §60.755(a)(1); (40 CFR 60.758(b)(1)(i); Regulation 6.45, section 3.1.3.1)

$$Q_M = \sum_{i=1}^{n} 2kL_o M_i \left(e^{-kt_i}\right)$$

Q_M = maximum expected gas generation flow rate, cubic meters per year
k = methane generation rate constant, $year^{-1}$
L_o = methane generation potential, cubic meters per megagram solid waste
M_i = mass of solid waste in the i section, megagrams
t_i = age of the i section, years

2) The density of wells, horizontal collectors, surface collectors, or other gas extraction devices; (40 CFR 60.758(b)(1)(ii))

3) Maintain continuous records of the flare pilot flame or flare flame monitoring and records of all periods of operations during which the pilot flame of the flare is absent. (40 CFR 60.758(b)(4), §60.758(c)(4);
Regulation 6.45, section 3.1.3.2)

x. The owner or operator shall keep for the life of the collection system an up-to - date, readily accessible plot map showing each existing and planned collector in the system and providing a unique identification location label for each collector and the installation date, and location of all newly installed collectors as specified under §60.755(b). (40 CFR 60.758(d) & 40 CFR 60.758(d)(1))

xi. The owner or operator shall keep records of all collection and control system exceedances of the operational standards, the reading in the subsequent month whether or not the second reading is an exceedance, and the location of each exceedance. (40 CFR 60.758(e))

xii. The owner or operator shall perform a monthly visual inspection of the structural and mechanical integrity of the open flares for signs of damage, air leakage, corrosion, etc. and repair as needed.
(Regulation 2.16, sections 4.1.9.1 and 4.1.9.2)

xiii. The owner or operator shall keep records, monthly, of the visual inspection of the structural and mechanical integrity of the open flares.
(Regulation 2.16, sections 4.1.9.1 and 4.1.9.2)

d. **Asbestos (40 CFR 61 Subpart M)**

i. For all asbestos-containing waste material received, the owner or operator of the active waste disposal site shall: (40 CFR 61.154(e))

1) Maintain waste shipment records including the following information; (40 CFR 61.154(e)(1))

(a) The name, address, and telephone number of the waste generator; (40 CFR 61.154(e)(1)(i))

(b) The name, address and telephone number of the transporter(s); (40 CFR 61.154(e)(1)(ii))

(c) The quantity of the asbestos-containing waste material in cubic meters (cubic yards); (40 CFR 61.154(e)(1)(iii))

(d) The presence of improperly enclosed or uncovered waste, or any asbestos-containing waste material not sealed in leak-tight containers; (40 CFR 61.154(e)(1)(iv))

(e) The date of the receipt; (40 CFR 61.154(e)(1)(v))

ii. As soon as possible and no longer than 30 days after receipt of the waste, send a copy of the signed waste shipment record to the waste generator.
(40 CFR 61.154(e)(2))

iii. Maintain, until closure, records of the location, depth and area, and quantity in cubic meters (cubic yards) of asbestos-containing waste material within the disposal site on a map or diagram of the disposal area. (40 CFR 61.154(f))

e. **HAP (40 CFR 63 Subpart AAAA)**

i. Develop and maintain on site a written SSM (Startup, Shutdown, and Malfunction) plan. (40 CFR 63.1960)

ii. If you add any liquids other than leachate in a controlled fashion to the waste mass and do not comply with the bioreactor requirements in 40 CFR 63.1947, 63.1955(c), and 63.1980(c) - (f), you must keep a record of calculations showing that the percent moisture by weight expected in the waste mass to which liquid is added is less than 40 percent. The calculation must consider the waste mass, moisture content of the incoming waste, mass of water added to the waste including leachate recirculation and other liquids addition and precipitation, and the mass of water removed through leachate or other water losses. Moisture level sampling or mass balances calculations can be used. You must document the calculations and the basis of any assumptions. Keep the record of the calculations until you cease liquids addition. (40 CFR 63.1980(g))

iii. If you calculate moisture content to establish the date your bioreactor is required to begin operating the collection and control system under § 63.1947(a)(2) or (c)(2), keep a record of the calculations including the information specified in paragraph (g) of this section for 5 years. (40 CFR 63.1980(h))

f. **TAC**

i. The owner or operator shall maintain records sufficient to demonstrate environmental acceptability, including, but not limited to MSDS, analysis of emissions, and/or modeling results.

ii. The owner or operator shall re-evaluate the environmental acceptability and document the environmentally acceptable emissions if a new TAC is introduced or the content of a TAC in a raw material increases.

iii. The owner or operator shall monthly calculate and record the municipal solid waste disposal rate from the previous twelve consecutive month period.

iv. If the twelve consecutive month period waste disposal rate exceeds 1,000,000 tons, the owner or operator shall monthly calculate and record the TAC emissions from the landfill from the previous twelve consecutive month period using LandGEM and AP-42 section 2.4 unless another method is approved by the District.

S3. **Reporting (Regulation 2.03, section 5.1)**

The owner or operator shall submit semi-annual compliance reports that include the information in this section. All reports shall include the company name, plant ID number, and the beginning and ending date of the reporting period. The compliance reports shall clearly identify any deviation from a permit requirement. The compliance reports shall be postmarked within 60 days following the end of each reporting period. All compliance reports shall include the following certification statement per Regulation 2.16, section 3.5.11.

- "Based on information and belief formed after reasonable inquiry, I certify that the statements and information in this document are true, accurate, and complete".
- Signature and title of the responsible official of the company.

The compliance reports are due on or before the following dates of each calendar year:

Reporting Period	Report Due Date
January 1st through June 30th	August 29th
July 1st through December 31st	March 1st

a. **CO**

i. The pre-Unit 8 expansion CO emissions (in tons) for each twelve consecutive month period in the reporting period in order to demonstrate compliance with the 234 tons per twelve consecutive month period limit. (U1 Comment 1)

ii. The Unit 8 expansion CO emissions (in tons) for each twelve consecutive month period in the reporting period in order to demonstrate compliance with the 249 tons per twelve consecutive month period limit. (U1 Comment 1)

iii. Identification of all periods of exceedances of the twelve consecutive month period CO emission standards, including the quantity of excess emissions or a negative declaration if no excess emissions occurred.

b. **Opacity**

i. Any deviation from the requirement to perform monthly visible emission (VE) surveys;

ii. Any deviation from the requirement to record the results of each VE survey;

iii. The number, date, and time of each VE survey where visible emissions were observed;

iv. Identification of whether visible emissions (smoke) were observed.

v. Description of any corrective action taken for each observance of visible emissions (smoke); and

vi. If no deviations from permit requirements occur during a reporting period, the owner or operator shall submit a negative declaration stating that no permit deviations occurred during the reporting period.

c. **NMOC**

i. The owner or operator shall report year-to-date NMOC emissions (in tons) in order to demonstrate compliance with the 167 tons per calendar year period limit.

ii. Identification of all periods of exceedances of the calendar year period NMOC emission standard, including the quantity of excess emissions or a negative declaration if no excess emissions occurred.

iii. The owner or operator shall report the following information: (U1 Comment 6)

1) Value and length of time for exceedance of applicable parameters monitored for: (§60.757f)(1))

(a) The active gas collection system,

i) The pressure in the gas collection header;

ii) The nitrogen or oxygen concentration, and

iii) The temperature in the landfill gas.

(b) The open flare,

i) The continuous presence of a flame, and

ii) The continuous presence of flow to the flare.

2) Description and duration of all periods when the control device was not operating for a period exceeding 1 hour and length of time the control device was not operating. (§60.757(f)(3))

3) All periods when the collection system was not operating in excess of 5 days. (§60.757(f)(4))

4) The location of each *SEM* exceedance of the 500 parts per million methane concentration and the concentration recorded at each location for which an exceedance was recorded in the previous month. (§60.757(f)(5))

5) The date of installation and the location of each well or collection system expansion added. (§60.757(f)(6))

6) A copy of the up-to-date plot map as required in U1 Specific Condition S2.c.x due April 15th of each year. (Regulation 2.16, section 4.1.9.3)

d. **Asbestos**

i. The owner or operator shall include the documentation of the presence of asbestos or nondegradable material for each area from which collection wells have been excluded based on the presence of asbestos or nondegradable materials with the initial performance test report. (40 CFR 60.757(g)(3))

ii. The owner or operator shall report in writing to the District, by the following working day, the presence of a significant amount of improperly enclosed or uncovered waste. Submit a copy of the waste shipment record along with the report. (40 CFR 61.154(e)(1)(iv))

iii. If the discrepancy between the quantity of waste designated on the waste shipment records and the quantity actually received is not resolved within 15 days after receiving the waste, immediately report in writing to the District. Describe the discrepancy and attempts to reconcile it, and submit a copy of the waste shipment record along with the report. (40 CFR 61.154(e)(3))
(U1 Comment 7)

iv. The owner or operator shall notify the District in writing at least 45 days prior to excavating or otherwise disturbing any asbestos-containing waste material that has been deposited at a waste disposal site and is covered. If the excavation will begin on a date other than the one contained in the original notice, notice of the new start date must be provided to the District at least 10 working days before excavation begins and in no event shall excavation begin earlier than the date specified in the original notification. Include the following information in the notice: (40 CFR 61.154(j))

1) Scheduled starting and completion dates.

2) Reason for disturbing the waste.

3) Procedures to be used to control emissions during excavation, storage, transport, and ultimate disposal of the excavated asbestos-containing waste material. If deemed necessary, the District may require changes in the emission control procedures to be used.

4) Location of any temporary storage site and the final disposal site.

v. The owner or operator shall include in the semi-annual reports any deviations that may have occurred in the reporting period or a negative declaration if no deviations occurred.

e. **HAP**

i. Any time an action taken during a startup, shutdown, and malfunction plan is not consistent with the SSM, the source shall report actions taken within 2 working days after commencing such actions, followed by a letter 7 days after the event.
(40 CFR 63 Subpart AAAA, Table 1)

ii. Within 90 days after the bioreactor achieves 40 percent moisture content, report the results of the calculation, the date the bioreactor achieved 40 percent moisture content by weight, and the date you plan to begin collection and control system operation. (40 CFR 63.1980(h))

f. **TAC**

i. The owner or operator shall report any conditions that were inconsistent with those conditions analyzed in the most recent Environmental Acceptability Demonstration or a negative declaration stating that operations were within the conditions analyzed. This includes, but is not limited to, control device upset conditions.

ii. The owner or operator shall re-analyze the Environmental Acceptability Demonstration to determine whether any conditions outside the analysis comply with the STAR program. Changes to the air dispersion modeling program or meteorological data used in the most recent Environmental Acceptability

Demonstration do not trigger the requirement to re-analyze. (Regulation 5.21 sections 4.22 – 4.24)

iii. The owner or operator shall submit the re-evaluated Environmental Acceptability Demonstration to the District within 6 months of a change that impacts the demonstration of environmental acceptability.

iv. The owner or operator shall identify all periods of exceedances of the twelve consecutive month period waste disposal rate, including the quantity of excess TAC emissions or a negative declaration if no excess exceedance occurred.

U1 Comments

1. The source has the potential to emit in excess of 250 tons per year of CO; therefore, there is a 249 ton per year limit for CO for the Unit 8 expansion to avoid PSD (Permit 422-08-C (R1)). There is also a 234 ton per year limit for CO for the pre-Unit 8 expansion emissions.

2. District Regulation 6.45 requires landfills to design a collection system that shall effectively capture the gas that is generated within the landfill.

3. Appendix B to District Regulation 6.45 contains the NMOC emission rate calculation if controls are required and after the installation of a collection and control system in compliance with section 3.1.2. The equation in the permit has been modified from metric units to standard units.

4. A revised Environmental Acceptability Demonstration was submitted to the District on February 25, 2013. The permit contains a throughput limit to ensure TAC emissions are below the rate modeled which demonstrated environmental acceptability.

5. Specific Conditions containing italicized sections not specifically included in 40 CFR 60 Subpart WWW are granted by District Regulation 2.16, sections 4.1.9.1 and 4.1.9.2.

6. Federal Regulation 40 CFR 63.1980(a) requires the annual report described in 40 CFR 60.757(f) to be submitted semi-annually.

7. The District has determined that "immediately" means the report will be submitted the day after the 15th day post discrepancy.

8. The Non Methane Organic Compounds (NMOC) emission rate report was received by the District on May 30, 1996. The facility's initial design capacity report was submitted by May 30, 1997. A revised NSPS Landfill Gas Collection and Control Design Plan was received by the District on January 10, 2010 as required. A final revision was submitted August 6, 2012. This report also includes the acceptable pressure measurements below the geomembrane.

9. The bioreactor areas in Units 5 and 7 are part of a research and development project between Waste Management and the United States Environmental Protection Agency performed under a Cooperative Research and Development Agreement (CRADA).

10. The reporting requirements in this permit supersede those contained in permit 423-08-C (R1).

Emission Unit U6: Truck Traffic on paved and unpaved roads

U6 Specific Conditions

S1. **Standards (Regulation 2.03, section 5.1)**

PM

The owner or operator shall use dust suppression on all unpaved roads in use for cell construction to the extent that the dust suppression vehicle is spraying water at a frequency of at least 15 minutes for every hour. The only exception to the 15 minutes per hour of dust suppression shall be during times of rainfall or when the landfill is not operation. (Permit 422-08-C (R1))
(U6 Comment 1)

S2. **Monitoring and Record Keeping (Regulation 2.03, section 5.1)**

The owner or operator shall maintain the required records for a minimum of 5 years and make the records readily available to the District upon request.

PM

i. The owner or operator shall maintain daily records of hours during which dust suppression is being performed on all unpaved roads during cell construction by the dust suppression vehicle, or a statement that rain occurred. If a statement that rain occurred is made it shall include the start and stop time of rainfall. During landfill operation, dust suppression shall occur at the standard frequency at all times except during rainfall. All records shall include the date, and name of the person making the entry.
(Permit 422-08-C (R1))

ii. The owner or operator shall maintain records, monthly, of the vehicle miles traveled of all vehicles. (U6 Comment 2)

iii. PM emissions will be calculated using the following equation unless another method is approved by the District: (U6 Comment 3)

PM = E (Emission Factor, lb/VMT) × VMT (miles) ÷ 2000 (lb/ton) × 15%

S3. **Reporting (Regulation 2.03, section 5.1)**

The owner or operator shall submit semi-annual compliance reports that include the information in this section. All reports shall include the company name, plant ID number, and the beginning and ending date of the reporting period. The compliance reports shall clearly identify any deviation from a permit requirement. The compliance reports shall be postmarked within 60 days following the end of each reporting period. All compliance reports shall include the following certification statement per Regulation 2.16, section 3.5.11.

- "Based on information and belief formed after reasonable inquiry, I certify that the statements and information in this document are true, accurate, and complete".
- Signature and title of the responsible official of the company.

The compliance reports are due on or before the following dates of each calendar year:

Reporting Period	Report Due Date
January 1st through June 30th	August 29th
July 1st through December 31st	March 1st

PM

Identification of all periods when dust suppression was not used on all unpaved roads for cell construction at a frequency equal to or greater than 15 minutes of every hour, or a statement that dust suppression was used at the described frequency during all times.

U6 Comments

1. In order to utilize 85% control of PM from unpaved roads the District has determined that the source must use dust suppression at the described frequency.

2. Records of vehicle miles traveled on paved and unpaved are necessary for reporting emissions for the annual emission inventory.

3. For paved roads, the emission factor is from AP-42, section 13.2.1 (January 2011):

$$E = [k(sL)^{0.91}(W)^{1.02}] [1 - P/4N]$$

where

E = emission factor, lb/VMT
k = particle size multiplier, 0.011 for PM, 0.0022 for PM10, 0.00054 for PM2.5
sL = road surface silt loading, 7.4 g/ft^2
W = mean vehicle weight, ton
P = number of precipitation days, 124 days
N = number of days in the averaging period, 365 days

For unpaved roads the emission factor is from AP-42, section 13.2.2 (November 2006):

$$E = k(s/12)^a(W/3)^b[(365-P)/365]$$

where

E = emission factor, lb/VMT
s = surface material slit content, 9.2
W = mean vehicle weight, ton
P = number of precipitation days, 124 days
k, a, b = empirical constants

Table 13.2.2-2.	PM	PM10	PM2.5
k (lb/VMT)	4.9	1.5	0.15
a	0.7	0.9	0.9
b	0.45	0.45	0.45

Plant-wide Comment

The construction permit fee for this revision is being waived because the District is correcting the CO limits and removing the PM limits which should not have been applicable.

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